

CALIFORNIA WILDLIFE HABITAT RELATIONSHIPS SYSTEM
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A037 Great Plains Toad *Bufo cognatus*
Family: Bufonidae Order: Anura Class: Amphibia

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DISTRIBUTION, ABUNDANCE, AND SEASONALITY

Great Plains toads are uncommon residents of the southeastern portion of California, from Imperial Co. north to the extreme eastern portions of Riverside and San Bernardino cos. These toads inhabit a variety of arid and semi-arid habitats; primarily found in grassy understories of desert habitats, as well as orchards and irrigated lowlands. This species is also found in desert riparian, wash, scrub, alkalai scrub, succulent shrub, and several other associated habitats. Never very common in terrestrial habitats. Active during spring and summer (Wright and Wright 1949, Behler and King 1979, Stebbins 1985).

SPECIFIC HABITAT REQUIREMENTS

Feeding: This species is known to feed on moths, caterpillars, flies, beetles and other insects. In southeastern Arizona, Great Plains toads feed primarily on ants (48%), termites (26%), and beetles (20%). Up to 22 feedings are required to accumulate the year's fat reserve (Dimmitt and Ruibal 1980). Most of the feeding occurs during spring and summer moist periods (Bragg and Smith 1943, Stebbins 1985).

Cover: This species requires loose soil for easy burrowing (Behler and King 1979).

Reproduction: Primarily uses clear, shallow, temporary pools, or quiet areas of streams, irrigation ditches or flooded fields (Bragg and Smith 1943, Stebbins 1954, 1985, Mayhew 1968). Water temperature must be between 18 and 34° C (64-94° F) for normal embryonic development. Seventy-two hours are required for hatching of toad eggs (Ballinger and McKinney 1966), and larval development takes 30-75 days, depending on the water temperature (Bragg 1940, Wright and Wright 1949).

Water: Needs standing clear water for breeding (see habitat requirements above).

Pattern: Arid areas of friable soil with clear, quiet standing water during the breeding season.

SPECIES LIFE HISTORY

Activity Patterns: This species is primarily nocturnal. Sometimes diurnal during cloudy, rainy days. It is active in the spring and summer when the temperature is above 21° C (70° F) (Brattstrom 1963), and will aestivate during the hottest part of the summer (Bragg and Smith 1943).

Seasonal Movements/Migration: Adults of this species will move overland after breeding (King 1932).

Home Range: No information.

Territory: No information.

Reproduction: Breeding occurs from April to September after heavy rains (Mayhew 1968). Adults breed in large congregations. Up to 20,000 eggs are laid by a single female. Larvae metamorphose 28 to 45 days after hatching (Bragg and Smith 1943). Individuals reach sexual maturity in 2 to 4 years (Porter 1972).

Niche: Egg mortality in this species may be as high as 65% (Bragg and Bressler 1951). Mortality of tadpoles is caused by predation from water beetle larvae and spadefoot toads, or by desiccation (Bragg 1940).

Comments: Other common names used for this species are: Say's toad, plains toad, Texas toad, western plains toad.

REFERENCES

- Ballinger, R. E., and C. O. McKinney. 1966. Developmental tolerances of certain anuran species. *J. Exp. Zool.* 161:21-28.
- Behler, J. L., and F. W. King. 1979. *The Audubon Society field guide to North American reptiles and amphibians.* Alfred Knopf, New York. 743pp.
- Bragg, A. N. 1940. Observations on the ecology and natural history of Anura I. Habits, habitat and breeding of *Bufo cognatus* Say. *Amer. Nat.* 74:322-349, 424-438.
- Bragg, A. N., and J. Bressler. 1951. Viability of the eggs of *Bufo cognatus*. *Proc. Okla. Acad. Sci.* 32:13.
- Bragg, A. N., and C. C. Smith. 1943. Observations on the ecology and natural history of Anura IV. The ecological distribution of toads in Oklahoma. *Ecology* 24:285-309.
- Brattstrom, B. H. 1963. A preliminary review of the thermal requirements of amphibians. *Ecology* 44:238-255.
- Dimmitt, M. A., and R. Ruibal. 1980a. Exploitation of food resources by spadefoot toads (*Scaphiopus*). *Copeia* 1980:854-862.
- Dimmitt, M. A., and R. Ruibal. 1980b. Environmental correlates of emergence in spadefoot toads (*Scaphiopus*). *J. Herpetol.* 14:21-29.
- King, F. W. 1932. Herpetological records and notes from the vicinity of Tucson, Arizona, July and August, 1930. *Copeia* 1932:175-177.
- Mayhew, W. W. 1968. The biology of desert amphibians and reptiles. Pages 195-356 in G. W. Brown, Jr., ed. *Desert Biology*, Vol. 1. Academic Press, New York. 638pp.
- Oliver, J. A. 1955. *The natural history of North American amphibians and reptiles.* Van Nostrand Co. Princeton, NJ. 359pp.
- Pickwell, G. 1947. *Amphibians and reptiles of the Pacific States.* Stanford Univ. Press, Stanford, CA. 236pp.
- Porter, K. R. 1972. *Herpetology.* W. B. Saunders, Philadelphia. 524pp.
- Stebbins, R. C. 1954. *Amphibians and reptiles of western North America.* McGraw-Hill, New York. 536pp.
- Stebbins, R. C. 1972. *California amphibians and reptiles.* Univ. California Press, Berkeley. 152 pp.
- Stebbins, R. C. 1985. *A field guide to western reptiles and amphibians.* 2nd ed., revised. Houghton Mifflin, Boston. 336pp.
- Wright, A. H., and A. A. Wright. 1949. *Handbook of frogs and toads of the United States and Canada.* Cornell Univ. Press, New York. 640pp.